REMARKS

Many of Applicants' claims have been rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/80680 in various combinations with JP 9-317, JP 7-171011, newly cited Takahashi, and DE 3006805.

Applicants noted in their previous response that the claims had been amended to recite needling with forked needles. The Examiner has responded by citing Takahashi to provide a disclosure of the use of forked needles, and contending that "one skilled in the art would have understood that either barb or fork needles would have been suitable for the purpose of needling the nonwoven in the formation of a loop component for a hook and loop fastener." Applicants do not agree that it would have been obvious to combine the use of forked needles with the other teachings of the prior art to reach Applicants' claimed invention.

The Examiner apparently continues to believe that the selection of forked needles to needle fibers through a carrier sheet, as claimed, would have been simply a routine design choice. Applicants respectfully submit that this is not the case.

On the contrary, as discussed in Applicants' previous response, and affirmed in the Declaration of James R. Barker, submitted herewith, Applicants have found that the use of forked needles is beneficial to reduce the tendency of many carrier sheets to tear when pierced. Because the carrier sheet is more punctured than torn, as shown in Figs. 2A and 2B of Applicants' specification, the carrier sheet is able to support the base of the loop structures after the needles have been retracted. As recited in Applicants' amended claims, the carrier sheet forms projections extending out of a general plane of the carrier sheet at the holes, the projections bearing against fibers passing through the holes. As a result, as discussed at page 19, lines 5-13 of Applicants' specification, the trunks of the loop structures are supported by the carrier sheet about the hole, a phenomenon Applicants refer to as "turtlenecking." The vertical stiffness thus imparted to the trunks acts to resist permanent crushing or flattening of the loop structures, which can occur when the loop material is spooled or when the finished product to which the loop material is later joined is compressed for packaging. Resiliency of the trunk, especially at its juncture with the base, can enable loop structures that have been "toppled" by

heavy crush loads to right themselves when the load is removed. (Declaration of James R. Barker, paragraph 2.)

Applicants also observed during development of the product that these projections of the carrier sheet could not be reliably obtained using barbed needles. This is in part because barbed needles have a tendency to tear the carrier sheet. However, without wishing to be bound to theory, Applicants believe that the poorer performance is also due to elongation of the holes during needling with barbed needles. Because barbed needles have barbs which are typically at least 4-6 mm from the tip, approximately 4-6 mm penetration is needed before the barbs begin to carry fibers through the carrier sheet. Thus, barbed needles tend to have a long dwell time in the carrier sheet (the time that the needle resides in the hole in the carrier sheet). The carrier sheet is moving laterally in a continuous needling process, and thus the holes are elongated by dragging the needles laterally within the hole. (Declaration of James R. Barker, paragraph 3.)

Forked needles tend to have less distance (typically no distance) from the tip to the fork, and thus each millimeter of needle penetration is a millimeter of effective penetration of the fibers through the carrier sheet. As a result, the effective dwell time of the needles in the carrier sheet can be minimized, minimizing elongation of the holes due to lateral movement of the carrier sheet while the needles are in the holes. Applicants believe that the minimal elongation of the holes allows the claimed projections to be formed, supporting the trunks of the loop structures. (Declaration of James R. Barker, paragraph 4.)

The different cross-sections of forked needles (which have a substantially round cross-section) and barbed needles (which have a triangular cross-section) may also play a role in the "turtlenecking" phenomenon. Again without wishing to be bound by theory, Applicants believe that the round cross-section may tend to prevent tearing of the carrier sheet and produce a cleaner puncture. (Declaration of James R. Barker, paragraph 5.)

There is no recognition in the art of record that the use of forked needles would provide any advantage over barbed needles when needling fibers through a carrier sheet. Nor is there any suggestion in the art of record that would have led the artisan to select forked needles for use in such a process. Accordingly, Applicants respectfully request that this rejection be withdrawn.

Applicants note that simply because Applicants did not take issue with each and every one of the Examiner's contentions in the previous office action, or the present office action, does not indicate that Applicants concede any of these points.

Please apply any charges or credits to deposit account 06-1050, referencing Attorney Docket No. 05918-346001.

Respectfully submitted,

Date: Aug 25, 2006

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